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Title of the Invention: THIN OPTICAL LAMINATE AND METHOD FOR  
MANUFACTURING THE SAME

[Claim 1]

15 A thin optical laminate, wherein a polarizing film with a thickness of  
10  $\mu\text{m}$  or less which contains a polyvinyl alcohol-based resin as a main  
component and a film or a sheet that has an optical function are laminated.

[0021] As the retardation film, coating retardation films, which include:  
20 films that are aligned by stretching, by a known method such as a tenter  
stretching method and a roller stretching, films composed of a  
polycarbonate-based resin, a polyvinyl alcohol-based resin, a  
polysulfone-based resin, a polyethersulfone-based resin, a polyarylate-based  
resin, a polyethylene terephthalate-based resin, a cyclo-polyolefin-based  
25 resin, a cellulose-based resin, a liquid crystal polymer, a mixture of a resin  
and a liquid crystal material and the like; a film that is subjected to  
necessary alignment by forming a coating layer containing a liquid crystal  
material on a base resin film; a film obtained by forming a coating layer  
containing an inorganic layer compound on a base resin film; and the like.  
30 A material, optical characteristics and a film thickness of the retardation  
film are selected appropriately as necessary. The laminate obtained by  
laminating such a retardation film to the polarizing film can be used as a  
1/2 $\lambda$  plate, a 1/4 $\lambda$  plate, an elliptically polarizing plate, a viewing angle  
improving film of a liquid crystal display and the like, for example.

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[0033] Example of the adhesive include: a polyvinyl alcohol-based adhesive; a polyurethane-based adhesive; an aromatic polyether-based adhesive; an aliphatic polyester-based adhesive; an aromatic polyester-based adhesive; an epoxy resin-based adhesive; a nitrile rubber-based adhesive; an acrylic adhesive; and the like. They are used in forms of a solvent type, a non-solvent type, a one-part type, a two-part type, an emulsion type and the like. When laminating: a polarizing film with a thickness of 10  $\mu\text{m}$  or less which contains a polyvinyl alcohol-based resin as a main component; and a film or a sheet that has an optical function, any one surface or both surfaces thereof may be subjected to the surface treatment, and further, the adhesive surface can also be subjected to the surface treatment. Example of the method of the surface treatment include a corona treatment, a flame treatment, a plasma treatment, a primer treatment and the like.

## THIN OPTICAL LAMINATE AND ITS MANUFACTURING METHOD

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Applicant: SUMITOMO CHEMICAL CO

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- international: G02B5/30; B32B7/02; B32B27/30; G02F1/1335; G02B5/30; B32B7/02; B32B27/30; G02F1/13; (IPC1-7): G02B5/30; B32B7/02; B32B27/30; G02F1/1335

- european:

Application number: JP20000168646 20000606

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### Abstract of JP2001350021

**PROBLEM TO BE SOLVED:** To provide an optical laminate having a polarizing film layer, being thin and moreover having little deformation such as curling due to variation in temperature and humidity, and to provide a method for manufacturing the same which is different from the conventional one. **SOLUTION:** The polarizing film, composed of a polyvinyl alcohol resin as a main component with  $\leq 10 \mu\text{m}$  thickness and the thin optical laminated body, comprising laminated optical functional films or sheets are provided. Also the method for manufacturing the optical laminate via a step to apply the polyvinyl alcohol resin to a base material resin film, a step to uniaxially stretch the obtained laminated film, so that the thickness of the polyvinyl alcohol resin layer becomes  $\leq 10 \mu\text{m}$ , a step to stick the optically functional film or the sheet 3 to the side of the polyvinyl alcohol resin layer 1, having a thickness of  $\leq 10 \mu\text{m}$  and a step for releasing and removing the base material resin film 2 after the optically functional film or the sheet is stuck, is provided.

